

Notes on taxonomic techniques

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I. PRESSING AND DRYING PLANTS

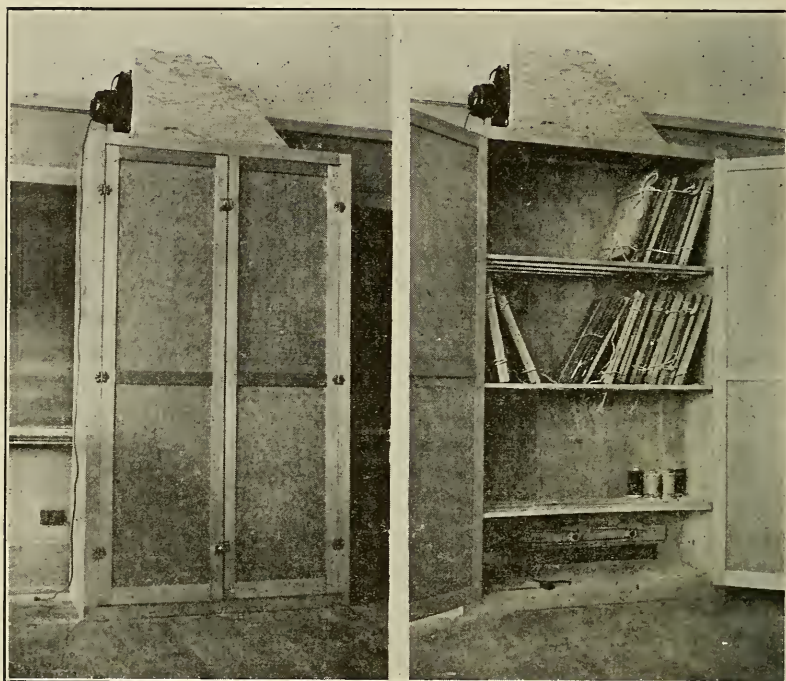
Salt. Drying of succulent plants may be hastened and improved and mold may be discouraged by use of salt.

Extreme succulents such as cacti, the snow plant (*Sarcodes sanguinea* Torr.), *Pholisma*, or even some *Crassulaceae* may best be split with a knife (and a fork for cacti) and perhaps scraped or hollowed like a dug-out canoe and then *heavily* salted and placed in the open air for a time. After a few minutes or an hour a puddle of brine accumulates in the hollow. This should be drained off and then the plant may stay in the open air until visible water is about gone and the specimen has just started to curl. For many cacti this requires about 24 hours. After this preliminary drying, the specimen should be pressed in the usual manner. The crust of salt may be washed away later by sparing use of water, and redrying the specimen by pressing requires only a short time. Cactus flowers may be split and salted also. The use of salt not only speeds up drying of succulents, but also it makes possible almost perfect preservation of color. *Sarcodes sanguinea*, for example, retains its characteristic red, and cactus flowers retain their coloration.

Salt is useful also for drying even slightly succulent specimens. Sprinkling it over the uncut plant surface hastens drying in even such water-conserving halophytes as *Salicornia*, *Atriplex*, *Allenrolfia*, and *Frankenia*, or in corms or bulbs or thickened roots or stem bases. A few scalpel slashes on thick stems or roots help the drying process.

Pressing and travelling. Despite the disrepute of "collecting by the roadside," no one with true botanical blood in his veins can drive an automobile through miles of plants without stopping to get them. However, unless some means are available for drying the specimens the result is a sorry mess of brown or moldy plant corpses. In dry regions, a press arranged for the front bumper of the car overcomes the difficulty of dehydrating plants, provided the cardboards are turned so the air flows through the corrugations. It also amuses some travellers and amazes the rest. In the Western States about 50 each of cardboards and blotters will dry large collections, provided field

work consists of intensive collecting in each of several localities for two or three day periods with considerable travelling in between stops. However, in the region of high humidity east of the Great Plains the method doesn't work.



Drying cabinet used for plant presses at Bakersfield Junior College, closed and open.

The 12 inch fan pulls air from the cabinet, the intake is at the bottom. Corrugations of the cardboards which alternate with blotters in the presses (now empty) are kept parallel to the air current.

Heat or air circulation. Despite the convenience and the satisfactory results obtained by drying plants above steam radiators, steam heat is rarely obtainable in Arizona or California and perhaps not often available elsewhere in the collecting season. While the writer taught at Bakersfield Junior College, California, the collections of about 30 students were dried each week from February until June, and one wooden cabinet 7 feet high by 4 feet wide by 21 inches deep was sufficient

for curing the specimens. A fan was used to pull air through the cabinet, and the air change provided good specimens in 2 to 4 days. At the University of Arizona, good results have been obtained by directing the air current from a fan against the side of a press in an open room. The outstanding feature of drying by air change is color preservation, which makes the collections more attractive to students. Since drying by air currents is slower than drying by heat, liberal use of salt on plants with any tendency toward thickness or succulence is necessary to increase the drying speed and to eliminate molds.

Whether use of fans is practical in the East, Southeast, or Middle West is another question. Humidity is low at Bakersfield and in Tucson after the end of February, and maximum temperatures range from 70 to 90 and above in March and April, and from 80 to 100 or over in May. The combination of dry air and high temperature is ideal for plant drying, and the fan method is a good one at least for the Western States.

II. DIGGING

Digging tools are variable, and each collector swears by his own type. Therefore, as one crank to another, the writer suggests the following: an ordinary box opener with a hammer end and a claw end (a trade name is Box Terrier). It is easy to carry, and it serves well for digging. Since there is a slight angle in the blade and the steel is strong and several millimeters thick, it is excellent, too, for prying rocks apart. The hammer end is useful for smashing rocks.

III. SOFTENING DRIED FLOWERS

The following formula for a fluid of almost magic powers in softening flowers and other parts of herbarium specimens for study was called to the attention of the writer by Mr. Arthur L. Cohen. Only a drop of fluid and about 1 minute of time are required to restore the flexibility and softness of any ordinary thin dried plant part, and the results are more satisfactory than those obtained by the time-honored method of boiling the flower. Per 100 cc., use 65 cc. of water, 20 of 95 per cent methyl alcohol, and 15 of glycerine.

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